

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

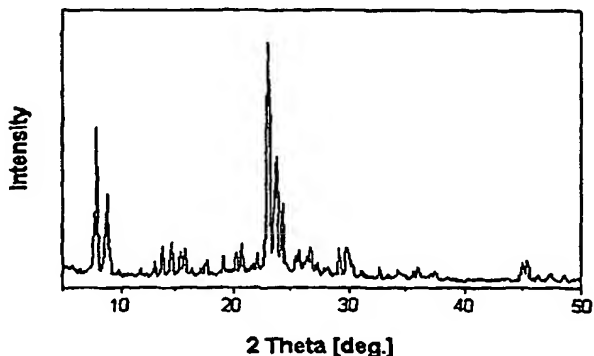


(43) International Publication Date
15 July 2004 (15.07.2004)

PCT

(10) International Publication Number
WO 2004/058643 A1

- (51) International Patent Classification⁷: C01B 39/36, B01J 29/00
- (21) International Application Number: PCT/KR2003/002801
- (22) International Filing Date: 22 December 2003 (22.12.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
10-2002-0087217 30 December 2002 (30.12.2002) KR
10-2003-0085197 27 November 2003 (27.11.2003) KR
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- (54) Title: METHOD OF PREPARING ZSM-5 USING VARIABLE TEMPERATURE WITHOUT ORGANIC TEMPLATE
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Declaration under Rule 4.17:**
— as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations
- Published:**
— with international search report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.



(57) **Abstract:** Disclosed is a method of preparing ZSM-5 having substantially 100% crystallinity by using variable temperatures in the absence of an organic template, characterized in that a reaction mixture having a molar composition of M_2O/SiO_2 (M: alkali metal ion) of 0.07-0.14, H_2O/SiO_2 of 15-42 and SiO_2/Al_2O_3 of 20-100 is nucleated at relatively high temperatures (180-210°C) and then crystallized at relatively low temperatures (130-170°C), thus easily controlling a crystal size and a particle size distribution of the ZSM-5.